REMARKS

Claims 1-3, 5-7 and 18-20 are all the claims pending in the application. Applicant has canceled claim 4 without prejudice or disclaimer. Please note, Applicant indicates that the PTO has moved the above application from art unit 1755 to art unit 1793 with the same examiner. Clearly, this third change may have potentially re-set the prosecution of this case back, that is, not advanced prosecution, particularly in view of the recent rejection covering previous reference combinations discussed by Applicant. Finally, Claims 1-7 and 18-20 stand rejected on prior art grounds. Applicant respectfully traverses the prior art rejections based on the following discussion.

I. The 35 U.S.C. Section 112, Second Paragraph Rejection

In response to the Section 112, Second Paragraph Rejection, Applicant has amended claim 18 consistent with the Examiner's comments.

In view of the foregoing, Applicants respectfully request that this rejection be withdrawn.

II. The Prior Art Rejections

Claims 1-7 and 18-20 are rejected under 35 U.S.C. Section 103(a) as being unpatentable over Baginski, et al. ("Baginski")(U.S. Patent No. 6,772,692) in view of Hee Cheul Choi, et al. ("Choi")(Positive and Negative Photopatterning of Metal Oxides on Silicon via Bipolar Electrochemical Deposition, Published on the Web, 9 August

2001) in further view of Faber, et al. ("Faber")(U.S. Patent Application No. 2001/0030007 A1).

A. The Rejection Based on Baginski in view of Choi in further view of Faber

Regarding independent claim 1, the references, separately or in combination, fail to disclose, teach or suggest a reason or motivation to be combined.

Briefly, Applicant submits that a clear distinction exists between "ignition"/ "deflagration" and "detonation." Ignition involves starting a burning process where hot gases may be provided at sub-sonic or sonic speeds. In contrast, a detonation train involves forming a shockwave to transfer through a material where the shockwave travels at an excess of the speed of sound, that is, a super-sonic speed, through an un-reactive material. Applicant's invention produces a detonation train, whereas Baginski, Choi and Faber, alone or in combination, only produce an ignition not a detonation. Contrary to the assertion in the Office Action, Baginski, as previously discussed, initiates a reaction not a detonation where Baginski does not disclose depositing a metal layer in situ on a substrate nor reacting the metal layer where the metal explosive cation reacts with a reactant, that is, hydrazoic acid gas, to form the primary explosive layer, which is a detonation layer. To make up for the specific deficiencies of Baginski, the Office Action seems to suggest that silvers azide from Faber would be deposited on the substrate layer from Baginski through an in-situ deposition method provided by Choi. If Applicant's interpretation of the combination is correct, then this combination only teaches that the

metal azide, such as, silver azide, is deposited on a substrate but still does not teach that a metal explosive cation is deposited on the substrate like Applicant's claimed invention.

Further, and more importantly, the proposed combination still does not teach that the metal explosive cation reacts with a reactant, which is hydrazoic acid gas, to form the primary explosive layer, which is a detonable layer. To be sure, conventional deposition of a metal azide from Faber on a substrate is significantly different than applicant's process of depositing a metal layer, which includes the metal explosive cation is deposited on the substrate and the metal explosive cation is reacted with hydrazoic acid gas. Accordingly, no reaction of a metal explosive cation with hydrazoic acid gas is taught or suggested by either Faber or Baginksi nor is it reasonable to use such a process as Faber and Baginski are, at best, focused on ignition not producing a detonation. Therefore, even modifying Baginski with Faber using Choi only produces an ignitable layer at best and still does not produce a detonable explosive layer.

Please note, Faber's process alone is simply designed to produce ignition components for deflagration or ignition not a detonable material layer like Applicant's invention. (See Faber at Abstract; and Column 1, Paragraphs [0002]-[0004]).

As previous discussed in the amendment of March 8, 2008, and for emphasis, nothing within Baginski, which pertains to an improved semiconductor bridge device for initiating a reaction with a relatively high output energy while reducing accidental firing with a reduced sensitivity, suggests a general white light promoted electrochemical metal oxide photopatterning procedure on silicon to produce transparent and semi-transparent thin films for technological devices involving spatial definition as disclosed in Choi.

Further, nothing within Baginski nor Choi, suggests ignition elements and finely graduatable ignition components for improved ignition sensitivity/insensitivity without substantially impairing the ignition delay time. (See Baginski at Abstract; Column 1, lines 15-67; and Choi at Abstract; Paragraph 1, lines 1-14).

To be sure, in part, Baginski requires formation of a single, relatively uniform laminate layer of a composite overcoat 114 (including 125), whereas Choi (as indicated below) teaches formation of a single photopatterned layer, which incompletely covers a lower silicon substrate. In further contrast, Faber teaches using two distinct material layers to surround an ignition pellet, that is, completely surrounding an ignition pellet element with a first ignition component and coating the first ignition component with a power component. Thus, these three technologies are structurally and functionally distinct. Importantly, even combining the references as suggested still produces a structure designed only for ignition not detonation. The proposed combination does not produce a primary explosive layer, which is a detonation layer, due to the lack of reacting the metal explosive cation with the hydrazoic acid gas like Applicant's claimed invention.

Therefore, as indicated above, one of ordinary skill in the art of electro-explosive devices would not have combined Baginski and Choi absent hindsight. In addition, and using the most recent and more relaxed interpretation of obviousness under KSR v. Teleflex, No. 04-1350, 550 U.S. __ (April 30, 2007), one of ordinary skill in the above arts would not have further combined Faber with Baginski and Choi absent hindsight, particularly with Choi pertaining to the art of transparent thin film technology for electronic applications, such as, ultrafast color displays.

Second, even assuming that the references would have been combined, Baginski, as indicated above, does not disclose, teach or suggest the features of independent claim 1, and related dependent claims 2, 3, 5-7 and 18-20, including reacting the metal layer comprising the metal explosive cation with a HN_3 gas reactant for forming a primary explosive layer. (See Application, Page 4, lines 13-27; Page 8, lines 4-11; and Figures 1A-4B).

Indeed, as previously discussed in the amendment of March 6, 2008, and today, Applicant agrees with the Examiner that Baginski did not specifically disclose an explosive layer of nickel azide. Applicant further agrees with the express statements in the previous Office Actions regarding the additional deficiencies of Baginski. To be sure, Baginski is still deficient, and certainly does not disclose, teach or suggest, including reacting the metal layer comprising the metal explosive cation with a HN_3 gas reactant for forming a primary explosive layer as recited in claim 1 above. (See Office Action, Page 3, Paragraph 3).

Choi is still also deficient.

For emphasis, as previously discussed in the amendment of March 6, 2008, Figures 1-3 and Table 1 of Choi merely disclose, as discussed above, a general white light promoted electrochemical metal oxide photopatterning procedure on n-or p-type Si, which permits negative and positive masking. In particular, a process 4P provides for bipolar electrochemical deposition performed where a short anodic current is applied to a silicon surface while light is illuminated through a masking to produce deposition of metal oxide in the desired patterning. Contrary to the assertion in the Office Action of December 6, 2006, the process 4P as well as the conventional 2P process, and the 2 and 4

non-photopatterning deposition of metal oxides on silicon processes all involve in-situ heating at 60 degrees Celsius during metal oxide deposition (what the Examiner attempts to analogize to Applicant's step of depositing a metal layer of metal in situ on the substrate layer). Accordingly, Choi is more structurally and functionally equivalent to photopatterning a layer of metal oxide on select locations of a silicon substrate, which appears to occur while being heated in-situ at 60 degrees Celsius, not in-situ deposition of a metal layer on a substrate layer, which occurs after formation of a substrate layer but prior to reacting the metal layer as claimed by Applicant. Therefore, Choi still does not disclose or suggest depositing a metal layer of a metal explosive cation in situ on a substrate layer nor reacting the metal layer comprising the metal explosive cation with a HN_3 gas reactant for forming a primary explosive layer. (See Office Action, Section 6, Page 5, lines 4-6; Choi at Abstract; Page 1, Paragraph 1, lines 10-14; Page 2, Paragraph 2, lines 1-14; Table 1; Page 3, Paragraph 3, line 1-Paragraph 4, line 10; and Figures 1-3).

To be sure, and as discussed in the previous Amendments, Applicant discloses a method of making a thin film explosive detonator, which includes, in part, depositing a metal layer of a metal explosive cation in situ on a substrate layer, and reacting the metal layer, which is comprised of a metal explosive cation, with hydrazoic acid gas to form an azide based primary explosive layer, which is a detonation layer as claimed. As mentioned, Choi is simply focused on transparent thin film formation using in-situ heating of metal oxides not azide based explosive layer formation using in-situ deposition of metal explosive cation on a substrate layer, such as, silicon. Therefore, Choi certainly did not disclose, teach or suggest, including depositing a metal layer of a metal explosive cation in situ on a substrate layer nor the primary explosive layer includes an azide-based

explosive salt with a predetermined thickness, which is a detonation layer as claimed by Applicant. Thus, Choi is still deficient, and certainly does not disclose, teach or suggest, including reacting the metal layer comprising the metal explosive cation with a HN_3 gas reactant for forming a primary explosive layer as recited in claim 1 above (See above).

Faber is also deficient.

Instead, Faber merely discloses ignition elements and finely graduatable ignition components for improved ignition sensitivity/insensitivity without substantially impairing the ignition delay time. Importantly, Faber produces an ignition system not a detonation system due to the absence of reacting a metal explosive cation with hydrazoic acid gas. In particular, Faber discloses a conventional ignition element in a form of an ignition pellet including two elongated electrically conducting pole carriers. The ignition pellet is dipped into an ignition component suspension, that is, a filament component, so that the first ignition component surrounds a connecting filament of the ignition element. The dipping process is repeated until adequate amounts of the filament component have been applied. Between dippings, the solvent is allowed to evaporate. After the filament component is applied, a power component is applied in a same manner as a coating around the filament component. The filament component includes 100 parts of a heat-conducting primer, "preferably," silver-azide, and 1-6 parts of a binder, such as polyvinyl acetate. The power component includes at least one ingredient that produces hot reaction particles, an oxidant and a binder. As previously discussed in the amendment of March 6, 2008, the Faber process is a conventional dipping and evaporation process for applying two different material layers on the connecting filament substrate without reacting any layers, let alone, reacting the metal layer comprising the metal explosive cation with a

HN_3 gas reactant for forming a primary explosive layer like Applicant's claimed invention. Please note, the primary explosive layer is a detonator layer.

From a materials perspective and a structural perspective, Faber is further distinct from Applicant's claimed invention. Faber discloses that the first layer is the filament component layer, which includes silver azide (what the Office Action analogizes to Applicant's explosive layer). Accordingly, and contrary to the assertion in the Office Action, the filament component layer is somewhat more analogous to Applicant's metal layer, which is deposited on a substrate layer, as the filament component is used to surround the connecting filament substrate. Therefore, the filament component layer, which surrounds the underlying connecting filament substrate, is somewhat structurally similar to Applicant's metal layer deposited on the underlying substrate. Nonetheless, the filament component layer is composed of different materials than Applicant's metal layer, which is composed of a metal explosive cation. To be sure, the filament layer includes the silver azide, whereas Applicant's metal layer includes a metal explosive cation without any azide material. Thus, Faber certainly does not teach or suggest reacting the metal layer comprising the metal explosive cation with a HN_3 gas reactant for forming a primary explosive layer like Applicant's claimed invention. (See Faber at Abstract; Column 1, [0001] and [0004]; and Column 1, [0006]-Column 3, [0009]).

Finally, and for emphasis, Applicant discloses, in part, reacting the metal layer comprising the metal explosive cation with a HN_3 gas reactant for forming a primary explosive layer, whereas Faber only discloses a dipping and evaporation process without reacting any metal layer, let alone, reacting the metal layer comprising the metal explosive cation with a HN_3 gas reactant for forming a primary explosive layer. Again,

please note, Applicant's primary explosive layer, which is a detonator layer by including an azide-based explosive salt, is the resultant layer of Applicant's process. In contrast, Faber's silver azide material is part of the filament component layer situated between the connecting filament substrate and the power component. Accordingly, an attempt to substitute Faber's filament component layer, including the silver azide used in an ignition system, for Applicant's metal layer comprised of a metal explosive cation without any azide material, would likely fail and destroy the function of Applicant's invention. Therefore, Applicant's invention is structurally and functionally distinct from Faber. Thus, Applicant traverses the assertions regarding the Faber reference.

For at least the reasons outlined above, and using the most recent and more relaxed interpretation of obviousness under KSR v. Teleflex, No. 04-1350, 550 U.S. __ (April 30, 2007), Applicant submits that none of Baginski, Choi, nor Faber, alone or in combination, disclose, teach or suggest, including reacting the metal layer comprising the metal explosive cation with a HN_3 gas reactant for forming a primary explosive layer as recited in independent claim 1.

For the reasons stated above, the claimed invention, and the invention as cited in independent claim 1, and related dependent claims 2, 3 5-7 and 18-20, are fully patentable over the cited references.

III. Formal Matters and Conclusions

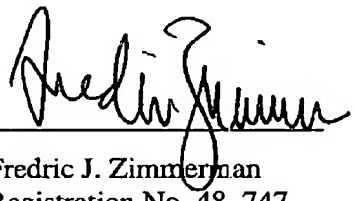
In view of the foregoing, Applicants submit that claims 1-3, 5-7 and 18-20, all the claims presently pending in the application, are patentably distinct from the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary.

Please charge any deficiencies and credit any overpayment to Attorney's Deposit Account Number 50-1114.

Respectfully submitted,

Dated: 24 July 2009



Fredric J. Zimmerman
Registration No. 48, 747

Department of the Navy
Office of Counsel
3824 Strauss Ave., Suite 103
Indian Head, MD 20640-5152
(301) 744-5603